Scientific American.

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THE
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☞See advertisement on last page.

Poetry.

EARNESTNESS.

Seasons ever ceaseless changing—
Flowers in boundless beauty growing—
Clouds over heaven's vault ever ranging—
Rivers ceaseless flowing—
Martyrs, Heroes, Saints, and Sages,—
Beacons to remotest time—
Towering over the wrecks of ages,
From their altitudes sublime,
Ever cry, dying man work earnestly!

Earnestness! life ever preacheth
To the God-breathed deathless soul,
That the path by which she reacheth
To her destined goal.
Life around is ever dying—
Only death to live doth seem;
Time is onward ever flying,
Silent, swift as lightning's gleam,
Ceaselessly, deathless souls work earnestly!

Say not thou art weak and lowly—
That thy power in good is small—
Spreads the eternal truth how slowly,
Each is born for all!
Humble help by Heaven's ne'er slighted;
What's a trembling rain-drop's power?
By such pearly hosts united—
Blossom, forest, field, and bower—
Weakness never frees from being earnest ever!

Misery round thee, piteous wailing,
Pleadeth ever for redress;
'Tis thy brother; nothing failing,
Strive to make it less!
Immortal beings are enshrouded
In the depths of mindless gloom:
Shall their souls be ne'er unclouded
Till their bodies fill the tomb?
Hear their cry, for us, O man, work earnestly?

Ever faithful, rest not, rust not,
Priceless time and soul's away,
To-morrow's harlot-wiles oh, trust not;
Work while 'tis to-day;
Rouse to deeds of Love and Duty,
Ere life verges in death's gloom—
Deeds that budding here in beauty,
Through eternity shall bloom?
Heaven's full joy shall crown thy toils triumphantly!

TELEGRAPH.

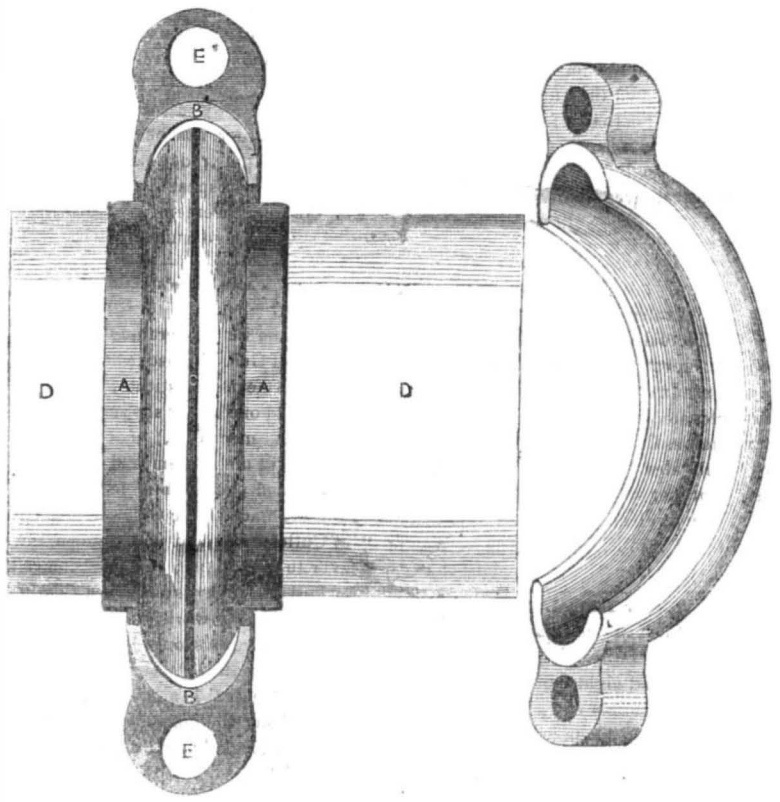
Ah! these little 'clicks' of the telegraph—
Though they breathe not a word
Their voices are heard
At a distance no voice could reach:
And swiftly as thought,
The words are brought,
And the lightning endowed with speech'

Though seas roll between,
And lands intervene,
The absent are at hand,
The eye seems to hear,
And space disappear,
And time is compelled to stand

The Cunard Steamers.

The average passages from Liverpool of this line of steamers during the past year, was 15 days 5 hours. The shortest passage being made by the Britannia, (12 days,) and the longest by the Hibernia, (20½ days.)

WEST AND THOMPSON'S CLASP COUPLING JOINT.



In our last week's number we noticed at considerable length this new invention, and promised that in a short time we should present our readers with an engraving of it. We now fulfil that promise, and without a single word of explanation almost any mechanic will be able by the above cut to understand its nature and the mode of its construction.

EXPLANATION.—D D, are two pieces of pipe A A, are two flanges joined each to one of the pieces of pipe. It will be observed that the coupling parts of these flanges are beviled and have no bolt holes as those in common use all have. C, is a piece of vulcanized India rubber, or any other packing that may be thought necessary, although a pressure can be exerted in bringing the flanges so close together that the joint is made perfectly tight without any packing, but we think that it is all the better to use a liftle packing. B B, is the clasp. This is divided into two parts and this part is represented with the flange resting on it. The other part of this clasp is represented by the figure to the right, which shews its concave part. By placing this over the bevil of the flanges and securing the two parts of the clasp together by belts passing through E E, is all the operation that is required in connecting two separate pieces of pipe together. Every mechanic will perceive that the tighter the clasp is screwed up the faces of the flanges are brought closer together and the joint is thereby made exceedingly tight Experience has proven this Joint to be excellent for pipes that are used for conducting steam. In our last number we published the names of gentlemen who have spoken very highly of it, and we also mentioned where it might be seen in practical use. Other information may be had by communications addressed to West and Thompson, of this city.

Corals.

Corals, on being gathered perfectly fresh, and planted in sea water, appear to put forth small flowers from all the minuta cavities, or hollow points on the surface These supposed flowers, for such an idea has been entertained, are real animals, and consequently corals are to be considered as aggregates of animals, either forming, or at least inhabiting the calcareous substance of the coral in which they appear. The smaller corals, commonly known by the name of corrallines, or sea mosses, are so many ramified sea polypes, covered with a kind of strong horny case to defend them from the injuries to which they would be liable, in the boisterous element destined for their abode. The harder, or, stony corals are equally of an animal nature: the entire coral continuing to grow as an animal, and to form, by secretion, the stronger, or horny exterior, which may at once be considered as its bone, and the habitation in which it has constantly to dwell. A coral of this kind is, therefore, a large compound zoophite, springing up from the rock, in which it seems to have taken root, and shooting out into branches like a vegetable production.

The Duke of Wellington's original name was Wesley. He was of the same family as John Wesley His present name is Wellesly.

Habits.

Habit is a strange thing. It is the adoption of and continuation of certain kinds of actions until they become easy and natural to us. But the power of habit is more strange. Look at it. It often counteracts the most sincere determination. It constrains many to break the most sincere vow. With herculean energy, it contends with resolutions of the mightiest minds and never will it relinquish its tenacious grip, while there is the least hope of victory. It sways our lives moulds our characters, establishes our reputations, controls our feeling, and determines our destinies. See then, what depends upon the habits you contract. How prudent should we be in choosing at first a course of action. Do you hear, young man, your future destiny depends upon the habits you prefer now

True Economy.

Economy is a good thing, and should be practiced by all, but it shows itself in denying ourselves, not by oppressing others. We see persons spending dollar after dollar foolishly, one hour, and the next trying to save a fivepenny piece of a wood-sawyer, coal-heaver, or market woman. Such thinks are disgraceful if not dishonest.

There are 800 Generals in the Spanish army and scarcely a good one in the whole lot.

RAIL ROAD NEWS.

The Great Western Railroad, as it is called, is on the Canadian side of this Continent, and stretches across the peninsula made on the other side by the bend of Lake Erie. It will unite Detroit by land with New York by a journey of as many hours as it once took days to steam up or down the lakes. It is 228 miles in length and the cost of its construction will be about $4,500.000, of which sum $2,500,000 have been already subscribed in Canada and England. Mr. Stuart, our State Engineer, is the Engineer of this great Canadian enterprise, and Mr. Ellet of Pennsylvania, we believe, is the contracting Engineer to build the Niagara Suspension Bridge, to unite this Canadian road with the Empire State. Thus two Americans superintend these great works and one of them, the grandest ever projected in this country, the completion of which will reflect great honor upon Mr. Ellet. The Canadians have exhibited much generosity and good feeling towards our citizens connected with them in these works and have expressed a hope along with a number of English noblemen, that it would be the basis not only of an everlasting peace between the two countries, but also of a permanent reciprocal friendship.

Railroad Dividends.

The Boston Path-Finder says that more than a million of dollars would be paid out by the several Railroad corporations in that city, in the shape of dividends, interest upon loans, &c., declared on the 1st of this month

Michigan Central Railroad.

The Michigan and Central Railroad company have declared a dividend of eight per cent on the capital to 10 per cent on the actual cost. The nett earnings of the road to Dec. 1st, was $295,000.

Boston and Worcester Railroad Transportation.

From a statement in the Boston Daily Advertiser, it appears that the quantity of merchandise transported over the Boston and Worcester Rail Road during the year on the 30th of November last, amounted to 284,000 tons, which exceeds an average of 900 tons a day. The freight money paid for the transportation of this merchandise, to the three rail roads which from the two lines terminating in Boston, was $867,000. One half the amount was transported a distance of 200 miles, and the average cost of the whole transportation was about $2, 40 a ton.

Pay of Rail Road.

English experience in railroad travelling, has clearly demonstrated that it is from short travel that the income of the roads is derived Eighty per cent of the passengers do not travel more than twelve miles. This is one of the many facts which go to prove that, in selecting routes for railways, it is not so much the terminal points that should be looked to, as the places along the line, Short travel is the source of profit from railroad investments, in every country in which railroads have been made.

The St. Louis New Era states that the posts for the magnetic wires where they cross the Mississippi, are 144 feet high: one of them is fixed on the Illinois shore one of them is fixed on Bloody Island, and the other in the city.

The Vermont and Massachusetts Railroad has been opened to Athol, 33 miles from Fitchburg

The newspapers of St. Louis are talking of extending the line of Telegraph, from that city to the Pacific. The cost is estimated at only $300,000.

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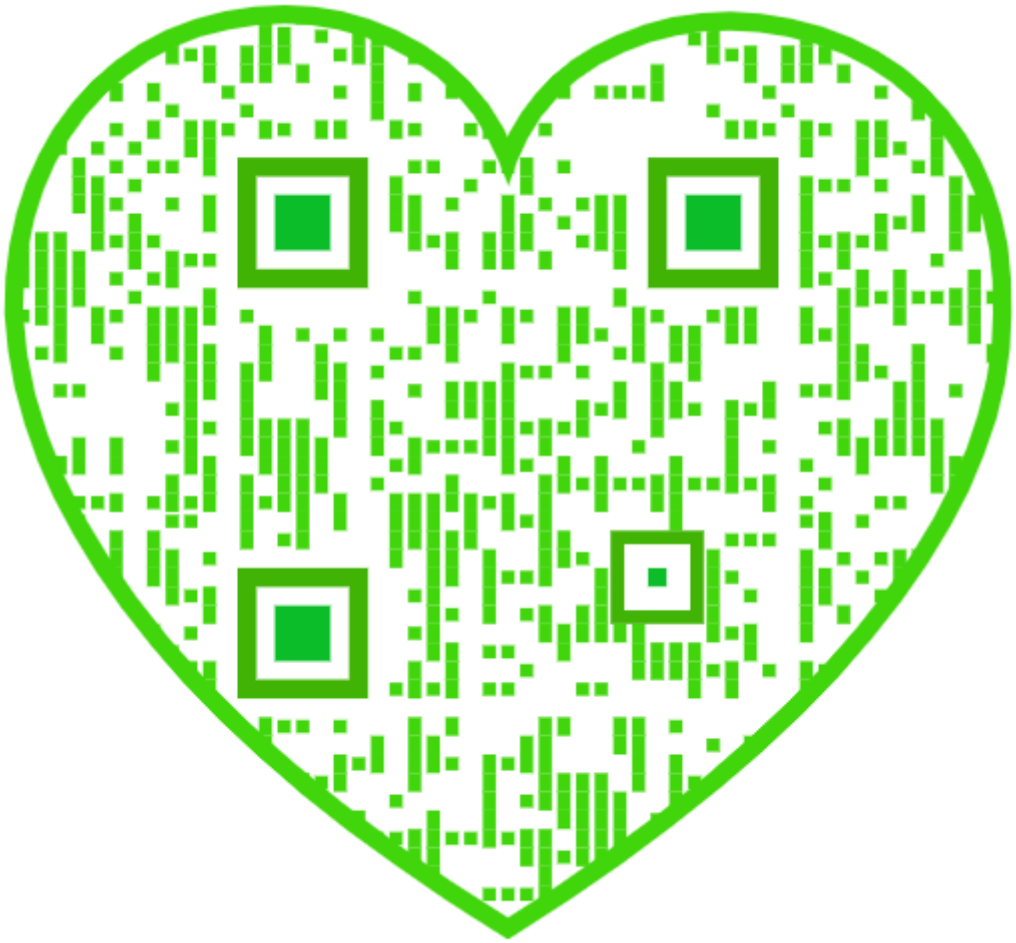

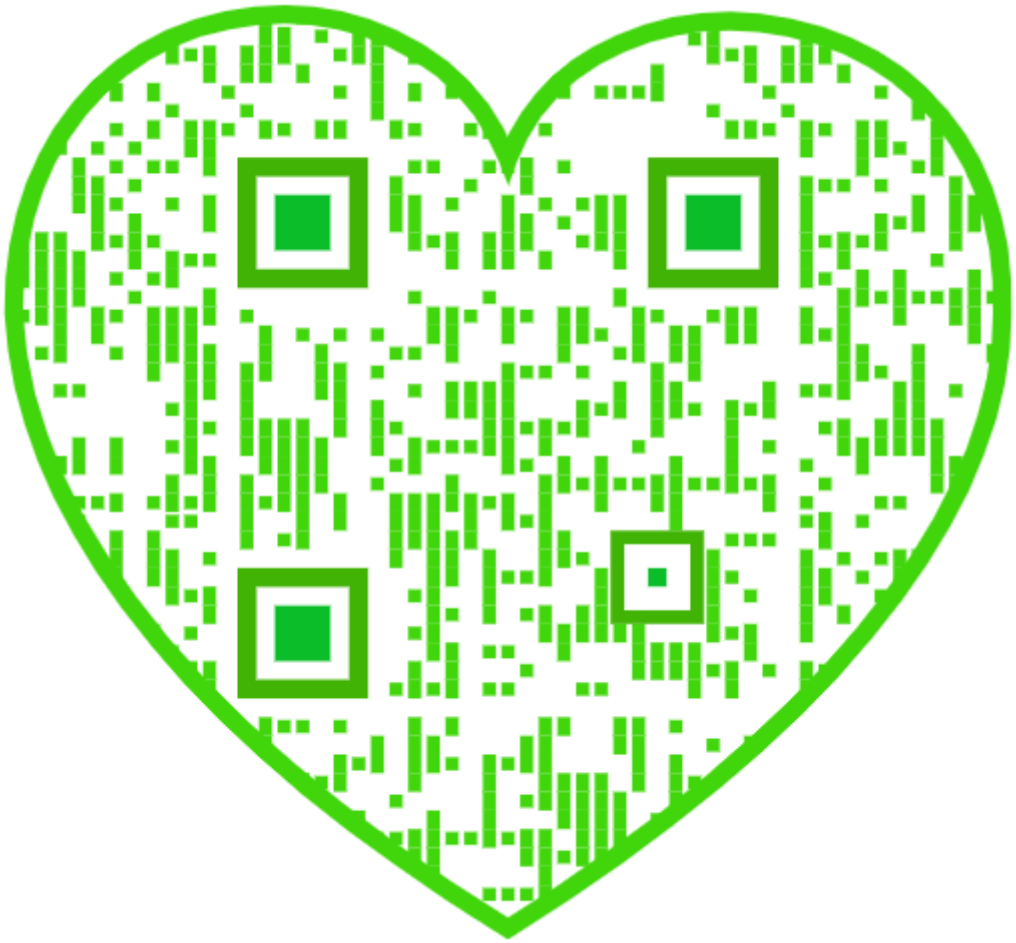

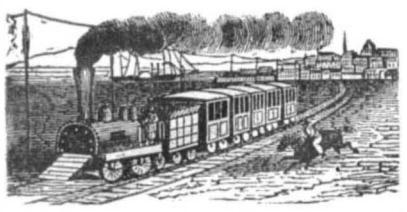

Safety Valve.

Mr. Moy, of Roll's Buildings, has constructed a double cylinder safety valve. It consists of a cylinder, the upper part of which is smaller than the lower, with two pistons fitting therein ; the pistons are cast in one piece and have a free passage for the steam to pass to the upper part of the cylinder. He has given the following explanation of its construction:—Suppose the required pressure to be 5 lbs. per inch, and that the two pistons weigh together 60 lbs., the lower piston must be 12 inches greater in its superficial area than the upper. Again : suppose the required pressure to be 60 lbs. per inch, and the pistons weigh, as before 60 lbs., then the lower piston must be one inch greater in its superficial area than the upper—thus doing away with springs and levers, &c. In practice, the cylinders should be lined with brass, and the eduction passages made obliquely that the lower piston may wear equally.—*London Artizan.*

Just about ten minutes before the above paragraph met our eye, we had some conversation with Mr. Charles Clinton, of South Middletown, Orange Co., N. Y., during which he described to us a Safety Valve the identical counterpart of the one described above in the November number of the Artizan, received by the Hibernia. Mr. Clinton invented his valve nine years ago, and secured a patent, but although it cost him more than a thousand dollars of expense from first to last, it has failed to bring him any remuneration, it not having been adopted in our country, whether from prejudice or want of real utility we cannot tell. Real downright experiment is the only true test of efficiency, and if Mr. Clinton's valve has not been fully and fairly tested, it is something to be regretted, as the principle of the invention is apparently sound in theory.

Another Warlike Invention.

The Boston Post says, a very neat pattern of a new cannon was exhibited to us yesterday morning by Mr. E. B. White, of Nashua, N, H. the inventor, which is supposed to be a valuable improvement upon the old fashioned instrument. It is not exactly a revolver, but is on something of the plan of Colt's pattern, for pistols and rifles. It has six bores and six vent-holes, so that it can be fired that number of times with once stopping to load. The lock, which has but one hammer, revolves, while the barrel is stationary. The vents or touch-holes are to be made of steel inserted in the barrel, and are covered with a piece of steel or iron which moves on a hinge, so that it can be lifted for the purpose of picking and inserting the cap. This cover will serve to keep the cap in its place, and will also serve the purpose of the thumb-piece. The caps to be used are the flat or wafer-caps, and the hammer is to be carried round by means of a screw and crank, and, striking upon this iron thumb-piece, causes the explosion. The invention has been examined by several scientific and practical gentleman, who have pronounced favorable opinions respecting its convenience and economy. The inventor states that the six charges can be loaded and fired in less time than two cannons of the same calibre of old fashioned cannon. He has made application for a patent.

A Newly Invented Rail.

The whole of the line between Darlington and York in England, is being relaid with new rails, chains and sleepers. The rail is of new invention, and of a very superior make and is considered as a great improvement upon the old description, as the surface of the rail being convex, it presents much less surface to the wheel and thereby the friction is much reduced—a great desideratum.

The mind is a most subtle electric apparatus. It can beat either Morse, House, Mac Bain or Brett, but it is an apparatus that needs o be frequently renewed.

Nautical Improvement.

A patent has been taken out in England by a Mr. Henwood for improvements in propelling vessels, and in steam vessels. The improvements have reference to the construction of the hulls of ships and vessels, particularly to screw propelled vessels, and are two-fold, first the construction and arrangement of the stern-post and rudder, also the mode of attaching the propellor itself, the principal feature of this improvement consisting in placing the rudder in the deadwood of the vessel before the propellor, and below the propellor shaft. The advantage the patentee says is ease and steadiness in working, by the entirely submerged position of the rudder, and of its not being affected therefore by any motion of the waves upon the surface, which renders the working of it by the helsmen easy and steady; also less liable to derangement by being comparatively free from violent concussions.

Learning is better than Riches.

Every aspiring young mind seeks elevated society. But elevated society is, and must always be intellectual. Indeed it is moral and intellectual elevation that elevates society, and where these qualities are not found society cannot be elevated, though every member of it were as rich as Croesus The youth, therefore. who cultivates his mental powers, and sustains a proper moral character, elevates himself to the level of elevated society, and will be admitted into it, whether he be rich or poor.

A New Island.

On the 21st of last March an island covered with luxurious vegetation, is represented to have been discovered eighty miles north, and about one thousann miles east of the Bermudas. The skeleton of a man and a boat partly finished were found on the beach. So says Capt Paulson in the Charleston Courier.

The Consecrated Island.

The island of Pootoo near Chusan in China, is remarkable for the number of its Hindoo Temples, estimated at 208 ; thirty-six are very spacious, where the principle heathen deities are kept. There are only a few inhabitants ; but the priests, sometimes to the number of 2,000, here celebrate their orgies. The island is but about twenty miles long, and has no females upon it,

Philanthropic.

The "General Society of Mechanics and Tradesmen" of this City has resolved to grant the use of its Library and Reading Rooms to educated deaf mutes on the same conditions as apprentices. The library is situated in Crosby st. botween Broome and Grand sts.

Zinc.

A large deposite of carbonate of zinc has been discovered in Lancaster county, Pa. The specimens have been proved by analysis to contain upwards of 60 per cent of zinc. Almost every week some new and rich mineral deposite is developed in that great State.

Our Down East Girls Yet.

In Dedham the women attend court, for the purpose of hearing the pleadings, during which they employ themselves in knitting and sewing. The more voluble the lawyer the faster go the needles—and when the judge commences his charge they generally begin to toe off.

Fires in New York.

During the year 1847. there were 264 fires and 96 false alarms. Eight persons were burned to death, and five or six others were injured. The amount of property destroyed was not far from $400,000. In December there was 17 fires and three alarms.

The Azores Rising

It has lately been discovered that a considerable elevation having taken place at the East end of the Island of St. Michaels. The old sea beach marked by unmistakable sea boulders is visible about three hundred yards within the present line of coast, and at the height of from three to four hundred feet above the sea level.

A steamboat race for $10,000 is to occur on the Hudson next spring between the John Stevens and the Mountaineer without passengers.

Correspondence.

New Orleans, Dec. 24, 1847.

Messrs Munn & Co.

Gentlemen :—Enclosed you will find a draft of 25 dollars for another thousand of those excellent likenesses of Gen. Taylor.—The thousand which we ordered in October, came safe to hand per bark Daniel Webster, and have all been disposed of.

While the old General was here en route to his family, the portraits sold rapidly, and we had not half enough to supply the demand.

Your edition is pronounced to be the most accurate likeness of any that have been sold in this city, and we desire that you forward another thousand by the first vessel bound for this port. H. Delroy & Co.

[The above letter was received a few days since and the order has been filled ; but we would inform the trade that we have a few more thousand to dispose of, at the prices named in the advertisement. Send your orders early—only a limited number on hand.

Gen. Talmadge's Address.

Mr. Editor :—

I read with no inconsiderable degree of pride the address of Gen. Talmadge before the Great Fair of the American Institute, and boasted in good nature to one of my shopmates (an ingenious English mechanic,) of our great improvements in mechanism and advancement in the Arts and pointed him to the following flattering sentence in the General's speech :

" In Cutlery England has yielded the en-
" deavor to supply us ; and now comes here
" to obtain our patterns and learn ftom us the
" perfection of her work."

My companion no sooner read the sentence than he burst into a hearty langh, and said, " Well, the General is a good un, saying all this after giving the gold medal for the best cutlery to an Englishman." And he referred me to the list of gold medals awarded, one of which was to Ibbotson & Horner for the best American cutlery. Ibbotson, he said, was a Sheffield English manufacturer, who in company with Mr. Horner, manufactured his American cutlery by contracting for labor at some of the New York State Prisons.

I was somewhat mortified by this intelligence and had my doubts that my companion was wrongly informed, as I do not believe that General Talmadge would make such a statement were it not an indisputable fact, and after long pondering over the subject, I write to you, Mr. Editor, for correct information on the subject. Yours, &c· J. L.

Boston, 6th Jan., 1848.

[We believe that J. L.'s shopmate is correct respecting Mr. Ibbotson, yet that does not invalidate the statement of General Talmadge. —Ed

Curious Mode of Splitting Rock.

According to the calculations of philosophers, a spherule or little globe of water, only one inch in diameter, expands, in freezing with a force superior to the resistance of the weight of 13 1-2 tons. This power it is said has been applied with success in Sweden and France, to the splitting of rocks. Why cannot this mode be adopted in Canada, and the northern parts of the United States, in winter filling holes drilled in the rocks with water, and allowing it to freeze.

Rye Bread Bakers.

The Emperor of Russia recently sent over to England ten bakers to teach gratuitously her British Majesty's subjects. One of these Bakers says the North British Mail having been employed by the parochial board of Glasgow, a specimen of his manufacture was exhibited at a meeting of that body lately and contrasted with a loaf baked from the same grain by a Scotchman. Notwithstanding the experience of the Russians in the manufacture of this description of bread, we are of opinion from the specimens produced, that the Scotch style of baking is decidedly the best; the bread, besides being more pleasing to the eye, is much more agreeable to the taste.

New York Path-Finder.

A neat little sheet with the above title has just been started in this city by Howe, Holbrook & Co as publishers, which is well worth the attention of advertisers. Office 205 Broadway, up stairs.

White and Black Songstress.

La Mascherata, the famous songstress, whose voice compasses the lowest barytone and highest soprano, has arrived in Paris. Her body is of snow white, while her head and neck are those of the blackest negress. She covers her ce and neck with a mask.

The Lowell Courier says a new canal recently completed for the use of the factories in Lowell, cost $580,000 The canal commences at the Pawtucket Dam, and ends at the Western Canal, near the Tremont Mills. Its length is about 5,000 feet, or a little less than a mile. The water way is 100 feet wide, and 15 feet deep,

A correspondent of the N. O. Delta, writing from Parras, in Chihuahua, says:—" There is in this rancho the phenomenon of a large number of Mexicans, from 17 years old to 7 months, all with fair skins and red heads. A red-headed Scotch gardener has been settled here twenty years."

There has been found imbedded in the banks of the Ohio, a tusk measuring eight feet and a half in length, twenty two and a half inches in circumference, with a corresponding diameter, and weighing about 206 lbs.

The Governor's Message of this State was conveyed by express locomotive from Albany to Utica, in two hours and thirty minutes.—The distance is 99 miles. This is on account of the heavy rail.

" Come down this instant," said the boatswain to a mischievous son of Erin who had been idling in the round top, " come down I say and I'll give you a dozen, you rascal !" " Troth. and I wouldn't come down if yon'd give me two dozen,"

At Pittsburg, a short time since, a man offered a lighted segar to one of the elephants at a managerie. The elephant acknowledged his politeness, with a wipe over the ribs, which sent him half across the arena.

M. Arago states, that there is in Siberia an entire district where, during the Winter, the sky is constantly clear, and where a single particle of snow never falls.

A comfortable four-wheeled carriage with crown ornaments and iron wheels, has been recently discovered in a house dug out at Pompeii

On New Year's day there was no ice in the North River at Pougheepsie, a fact without a precedent in the memory of the oldest inhabitant. A few years since heavy laden teams were driven across on the ice about Christmas time.

At Baltimore, Christmass day, a drunken man entered one of the churches, and walking up to the altar, asked for a glass of eggnogg. He thought he was in a tavern.

Liberia has been erected into a Republic. Gov. Roberts was elected President, and Nathaniel Brander Vice President. The affairs of this new republic are represented to be in a prosperous condition.

Near 7 lbs. of gold pieces, five of which weighed 5 lbs. 8 oz. 17 dwt, and the largest 1 lb. 11 oz, were found lately near Island Creek, in Montgomery county, North Carolina.

A fellow in Louisville has been fined ten dollars for unmercifully beating his horse, because the poor animal could not pull a load sufficient for six horses.

The Woolverhampton Chronicle, says that such is the celerity in manufacturing iron in this part of the country, that instances have occurred in which the calcined ore has been converted into rails and actually delivered in Liverpool within two days.

An Irishman went into a drug store in Boston lately, and called for a pint of gin. The druggist gave him nearly half a pint of camphene, which he drank and was not expected to recover.

On the railway near Newcastle England, where there is a strong current of air in consequence of a deep cutting, the wind produces beautiful tones from the wires of the Electric Telegraph.

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Prepared for the Scientific American

Coffee.

Coffee is the seed of the *Coffea Arabica* of Linnæus, an evergreen shrub cultivated in Arabia, Persia, the East and West Indies, Isle of Bourbon, and several parts of America.—Coffee is very seldom used as a medicine, but chiefly as an article of diet, and also as an agreeable and stimulating beverage. Coffee when roasted and infused in boiling water for a short time, care being taken to prevent as much as possible the escape of the aroma or volatile particles, and drunk in the usual way stimulates the system. It is, however, a singular peculiarity of coffee, that if used in its raw state either in the form of powder or infusion, it produces febrifuge effects. In this way it has been used with success in cases of asthma, and for the cure of intermittent fever. When roasted it becomes a powerful stimulant, and possessing a large proportion of nitrogen, it exerts considerable influence on the organs of digestion. A strong infusion of coffee, taken without milk or sugar, has been employed with great advantage in arresting obstinate attacks of billious vomiting. Its peculiar effects of increasing the energy of the brain and nervous system, and preventing the disposition to sleep, rendering it the favorite beverage of literary persons, are well known; and perhaps it is owing to this peculiarity that it possesses the power of acting as an antidote to narcotic vegetable poison.

The use of coffee was strongly opposed in the East, and for some time the sale of it suppressed It was introduced into France upwards of 200 years ago, and was brought from the Levant to London in 1652, by a Turkey merchant of the name of Edwards, who established his Greek servant in a house in St. Michael's Alley, Cornhill, to prepare and sell this palatable potation. Its introduction into England met with strong opposition. Notwithstanding this, coffee continued to be consumed, and the coffee houses to increase which were frequented by wits, idlers and politicians to drink coffee and discuss the various subjects of public excitement.

An infusion of coffee properly prepared, stimulates to increased action, the brain, nervous system, heart and arteries of a healthy man, and in certain states of impaired digestion, imparts a beneficial influence to the digestive organs. Alcohol in the different forms of spirits, wines and ale, porter and beer, is often taken with a view of producing similar effects. Alcohol contains no nitrogen, the material of muscular strength, and therefore can impart no strength to the human system.

The use of coffee as a substitute for alcoholic beverages has been of greater service to society in a moral and physical point of view.

There are several varieties of coffee, but the Mocha is considered the best; it ought to be of a greenish light olive hue, the berries at a middling size, clean and plump. Much, however, depends on the roasting of the coffee and preparing it for use; the process of roasting is generally carried too far, and much of the empyrematic oil on which its virtue depends driven off.

It is customary for grocers who grind coffee for their retail customers to add to it about one fourth and sometimes more, of corn or of peas, These are not deleterious ingredients, but a very salutary addition, particularly to inferior coffee. It is not, however, the object of the grocer to improve the coffee, but to enable him to sell it at a lower price. Soft water is the best for the infusion of either tea or coffee, when this cannot be had, the addition of a little carbonate of soda will counteract the ferruginous or calcerous ingredients usually found in hard water.

Chicory.

Chicory is now grown extensively, says a late English paper, in the neighborhood of York, and in some parts of the north and east ridings of Yorkshire Chicory is mixed with coffee, and sold often in England for coffee.—It is a very inferior article, but not deleterious. It may, for aught we know, be used in this country. To prevent imposition, get your coffee whole and grind it yourself. The deception can only be practised when the coffee is ground for you.

For the Scientific American.

Knitting.

This is an art that is far more modern than that of weaving. Plain weaving, is just the intersecting or crossing a number of horizontal threads by others, each succeeding crossing thread passing over one horizontal thread, (warp) and under the other across the web.—Knitting on the other hand, makes a web with one thread alone, it answering for both warp and weft and the whole apparatus for this purpose carried about in a lady's pocket. Knitting is just the formation of a number of loops or first a row of loops and then every succeeding row drawn through a former row.—Four wires are generally used for this purpose, but it can also be done with one, of a hook shape, to draw one loop through another. Guernsey frocks and mittens are made in this way. Knitting is said to have been invented in Scotland about the year 1500. If this is true it has soon spread nearly over the wide world. It is related that a Scottish gentleman had a servant who was famous for her fine knitting. At one time she knit a pair of hose of the most variegated and beautiful colors and of such fine texture that that each pair could be drawn through a gold ring. The gentleman, who was a loyal subject, (like some of our friends here who have made Victoria presents) determined to show his loyalty to George the Fourth, by sending him one of the pairs of hose. It is also related that the girl who made them, danced a hole in the heel of one of them at a ball the night before it was sent away and darned it so perfect that it was presented to the king, who was graciously pleased with the present and often wore them afterwards, not without a sly wink from Jenny, as often as she heard them speak about the King's hose. In New England hand knitting is industriously practised by our tidy farmers' daughters, in fact in all our rural districts, it is an essential quality of a good housewife, and should be, so should spinning and hand loom weaving. Knitting is done extensively by machinery at Cohoes, a thriving manufacturing village on the lower Falls of the Mohawk, near Troy, N. Y.

Steam Boat Explosion.

The Cincinnati papers of the 31st, relate the fearful explosion of the Steamer A. E. Johnson, on her first trip from that City to Wheeling, Va. A Mr. Williams saved the life of himself and lady by remarkable presence of mind.

Mr. Williams and lady were sitting in the ladies' cabin A horrible crash aroused them. Mr. W. feeling the steam penetrating through the state-room, seized his wife who had sprung up, and enveloping both her and himself in the bed clothes. saved themselves from being scalded by the steam and hot-water, which soon wet every thing around. Looking out in a few minutes, he found that one of the boilers had been blown aft, directly through the boat, tearing away the doors of both cabins, and carrying off the front of the state-room on the side opposite to them. Front of the wheel-houses the gentlemen's cabin was all blown away or fallen down. Mr. W. and lady got on the guard, beside their state-room, which, fortunately, was on the side toward the shore, close to which the boat lay, and by the assistance of the captain, got safe to land. They were the last that left the wreck through which the fire was then rapidly spreading.

Notwithstanding the reported statement of the dying engineer, it seems to be the general opinion that the horrible accident occurred from a want of water in the boilers, which in turn was oscasioned by an imperfection in the pumps.

She had three boilers, and it is thought the flues of all collapsed. One is supposed to have gone down through the hull, and occasioned the rapid sinking which took place; another passed aft, as already mentioned, tearing every thing before it, and landing in a cornfield some 300 yards below, while the third broke into two pieces, one of which was found in a bank close by, and the other in a cornfield some 250 yards above.

A great number of lives have been lost. Careful and experienced engineers should alone be entrusted with the care of all the engines.

Early Printers.

Early printers were men of profound erudition and the printing office was then in the strict sense of the word, a "temple of learning." In the first days of the art of printing, its professors very often wrote, or edited the works which they gave to the world—and these, it will be remembered, were for the most part composed in the learned languages. Among the most celebrated of these early printers is the family of Stephens, who, for more than a century, astonished the world by their vast erudition, as well as by their magnificent specimens of typography which issued from their press This press, says Hallam, might be called the central point of illumination to all Europe." In the year 1558, Henry Stephens, the star of the family, "published more editions of ancient authors than would have been sufficient to make the reputation of another author." His "Thesaurus of the Greek remains to this day is the great lexicon of this language.

Robert Stephens, the third in succession, is distinguished for his very beautiful edition of the Greek Testament, which forms the basis of the one now in use. An idea may be formed of his extensive erudition, as well as of the learning of the times, from the following accounts of his biographers—"He received only such compositors into his printing office as were conversant with the Greek and Latin languages. His workmen, in and about the office were obliged to speak Latin. His wife and daughter understood this language thoroughly, and assisted him in carrying his directions into effect: so that throughout his whole house and printing establishment, from the bureau of business to the kitchen, nothing was heard but the Latin tongue. He usually employed the proof readers, all from foreign countries, who spoke the various languages which they corrected. The zeal of this early and learned printer for study, for the maintaining the honor and dignity of the press, and for the public good in general, is worthy of the highest commendation—and his character in this respect is worthy of imitation by all the members of the craft.

"The glory of the house of the Stephens was shared by five successive generations," first in Paris, afterwards at Geneva, in Switzerland.

Diamonds Converted into Charcoal.

Before the last meeting of the British Association Prof. Faraday exhibited some diamonds, which he had received from M. Dumas, that had by the action of intense heat been converted into coke. In one case, the heat of the flame of oxide of carbon and oxygen had been used—in another, the oxyhydrogen flame—and in the third, the galvanic arc of flame, from a Bunsen battery of 100 pairs. In the last case the diamond was perfectly converted into a piece of coke—and in the others, the fusion and carbonaceous formation were evident. Specimens in which the character of graphite was taken by the diamond, were also shown. The electrical characters of the diamonds were stated also to be changed—the diamond being an insulator, while coke is a conductor.

The diamond was ignited by a powerful lens, in a platina capsule by Sir Humphrey Davy in 1812. It burned with a steady brilliant light. By combustion, diamonds produce nothing but pure carbonic acid gas.

The True Use to be made of Learning and Genius.

Hath God given you genius and learning? it was not that you might amuse or deck yourself with it, and kindle a blaze which should only serve to attract and dazzle the eyes of men. It was intended to be the means of leading both them and yourself to the Father of lights. And it will be your duty, according to the peculiar turn of that genius and capacity either to endeavor to improve or adorn human life, or, by a more direct application of it to Divine subjects, to plead the cause of religion to defend its truths, to enforce and recommend its practice, to deter men from courses which would be dishonorable to God and fatal to themselves, and to try the utmost efforts of all the solemnity and tenderness with which you can clothe your addresses, to lead them into the paths of virtue and happiness.—*Dodridge*.

Facts About Digestion.

Wheat is the most nutritious of all substances except oil; containing ninety-five parts of nutriment to five of waste matter. Dry peas, nuts and barley, are nearly as nutritious as wheat —Garden vegetables stand lowest on the list, in asmuch as they contain when fresh a large portion of water. The quantity of waste matter is more than eight-tenths of the whole. Only one-fortieth of a cucumber is capable of being converted into nutriment. The nutritious parts of the different meats vary from one-fifth to one-eighth of the whole. Veal is the most nutritious; then fowls, then beef, last pork. The most nutritious fruits are plums grapes, apricots, cherries, peaches, gooseberries, apples, strawberries, and melons.

Of all the articles of food, boiled rice is digested in the shortest time—an hour. As it also contains eight-tenths of nutritious matter, it is a valuable substance of diet. Tripe and pig's feet are digested almost as rapidly. Apples if sweet and ripe are next in order.—Venison is digested almost as soon as apples. Roasted potatoes are digested in half the time required by the same vegetables boiled, which occupy three hours and a half—more than beef or mutton. Bread occupies three hours and a quarter. Stewed oysters and boiled eggs are digested in three hours and a half—an hour more than is required by the same articles raw. Turkey and goose are converted in two hours and a half—an hour and a half sooner than chicken.

Roasted veal, pork and salted beef occupy five hours and a half—the longest of all articles of food.

Foreign Items.

Cultivation of Cotton in Algeria.

The French Minister of Commerce lately sent specimens of Cotton grown in Algeria to the principal manufacturing towns, with a view to ascertain its quality. The chamber of Commerce at St. Quentein has reported favorably of the specimens received; the Chamber of Commerce at Lille also speaks in the highest terms of the Algerian Cotton, and promises that Cotton from the African colony will find a regular and profitable market in that district. In consequence of these reports it is said the French Government is likely to adopt measures for promoting the growth of Cotton in Algeria upon an extensive scale.

Cultivation of Cotton in India.

Advices were received by the Manchester Commercial Association yesterday morning from the East India Company, that the honorable court of Directors had directed 45 bales of cotton, grown from New Orleans seed, the produce of their farm at Coimbatore, and imported per Olinda from Cochin, to be forwarded to Manchester for sale. They are consigned to Mr. Hugh Fleming, the secretary of the association, and we understand that in a few days samples will be on view at the rooms of the Commercial Association —This cotton is stated to be of of a very good quality.—*Manchester Guardian*.

The Duke of Wellington.

No man so little beloved was ever so well obeyed; and there is not a man in England, of either party citizen or soldier, who would not rather die than see him disgraced. His firmness, his moderation, his probity, place him more opposite to Napoleon than when he stood In the field of Waterloo, These are his lofty lines of Torres Vedras, which no enemy dares assail throughout their whole extent.

Chloriform has been tried at Paris, with signal success, in operations on cancer and abscess in the female breast, The patients were not in the least sensible of the operations whilst they were in progress, and woke from them as calmly as from sleep.

It is an important fact that the Moravian settlement of Sarepta, on the river Volga, has again, for the second time, escaped the visitation of the cholera, whilst the disease has prevailed all around it. This is supposed to be the result of the well known temperance and cleanliness of the Moravians, who rival the Society of Friends in both these qualities.

A steamer has been built in London for the express purpose of carrying the despatches of the Times between the French and English coasts.

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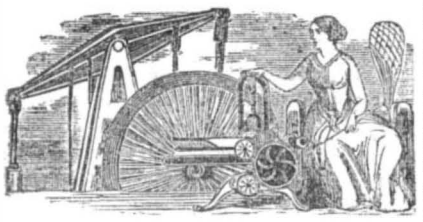


New Inventions.

New Dredging Boat.

We have seen drawings of an apparatus invented by Mr. James Callaghan, of New Bedford, Mass., for the purpose of excavating harbors and rivers and removing obstructions to navigation, which in our opinion will be of great importance and value to the United States. It is a well known fact that although we have the finest navigable rivers in the world for inland commerce, yet there is not a single river in our country but by good dredging might be made twice as well adapted to navigation as it is. During the summer months, vessels drawing over six feet of water are often aground between this city and Albany, while at the same time there is as much water flowing to the sea as might float seventy-four gun ships were the water directed into a deep and proper channel. This can be done by mechanical invention and we are satisfied that the invention of Mr Callaghan will be the means of improving many of our rivers and harbors, at less than one half the expense which is now incurred for that purpose by our present imperfect excavating vessels. His apparatus can be fitted up in any old steamboat, and his improvement in scooping is very different from any other plan and far superior.

An Improvement in Spectacles.

An exchange says that a man named Shaw, near Cleveland, Ohio, has invented a new style of spectacles. He has been successful in combining three sets of lenses in such a manner that they can be readily adopted to seven distinct distances.

Turning.

Mr. Elbridge Webber, of Gardiner, Maine, has lately made some very important improvements in machines for turning Boxes The chuck is graduated on a scale to turn out a great variety of sizes and so regulated that the changes can be made in the most rapid manner.

Machine for Cutting Washers.

Mr. Newell H. Bates, a very ingenious mechanic, of Dexter, Maine, has invented a very beautiful improvement in machinery for cutting Washers, which is in active operation and works well. Every revolution of the machine cuts out by a die a Washer, as fast as it can be fed with iron. Mr. Bates can also cut three or four at a single instant by a little alteration of his machine. This is a valuable invention and measures are taken to secure a patent.

Important Chemical Preparation for rendering Leather Waterproof.

Mr. John Hutchison, of Newbern, N. C., has discovered a valuable composition, for which he has taken measures to secure a patent, for making leather perfectly impermeable to water. By applying it to boots or shoes or any kind of leather, it makes them completely waterproof. This substance is superior to a great number of compositions that have been got up for making leather waterproof, inasmuch as the leather is greatly improved by being saturated with it.

Marine Mill.

The Marine Mill, which we stated a short time ago to have been invented in St. Louis, Missouri, we have been informed since, is the invention of a very ingenious mechanic of that city, named F. Freligh, who is himself a miller. It is constructed on the principle of the Mariner's Compass, the stones constantly maintaining their leval position, no matter what may be the movement of the boat. The inventor thinks that it may be successfully used while the boat is going from port to port, in grinding the wheat which may be taken on board the vessel—so that by the time she arrives at her destination, the whole may be turned into flour.

In this case, a vessel taking in a cargo of wheat at Chicago has it all turned into flour by the time she gets to Buffalo. We are some what sceptical respecting the economy of the invention, although not about the practicability of it.

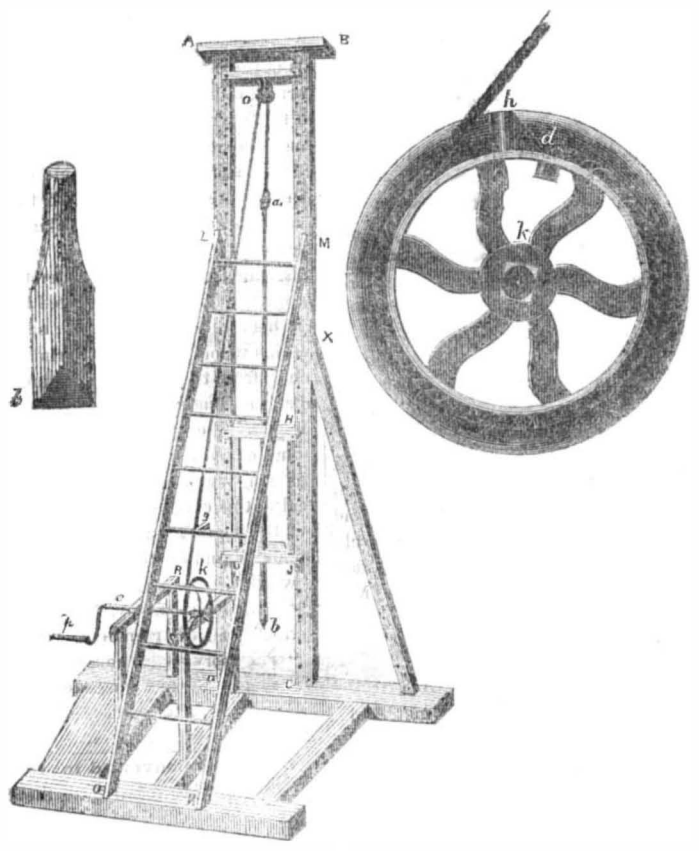
New Cannon.

A Swedish officer has invented a new kind of cannon, several pieces of which have been sent to Woolwich for trial. These guns are groved like a rifle, and are not loaded at the mouth, but at the breech, where there are two plugs. one at the side and the other at the head of the breech. The charge is put in at the side of the breech, and when the two plugs are pushed into their places, the gun is ready to be fired. The alledged advantages of these guns are that they are free from the danger of explosion, that the gunners are concealed while loading, and that the shot are thrown with greater accuracy of aim.

Light from Electricity.

Mr. Staite, of whom we gave an account some time ago, as having decomposed water and produced light by it, through the agency of electricity, has been lecturing before the Philosophical Society of Sunderland, (Eng.) and has perfectly astonished the inhabitants of that place. The light which was of astonishing brilliance and beauty, was placed under an air-tight glass vase. When the gas was turned down it sufficiently lighted the spacious building, and bore the closest resemblance to the great orb of day of any light, it is said, ever exhibited. The electric light was next exhibited in a vessel of water, with equal success. Mr. S stated that it was the cheapest as well as the best for all practical purposes; and the marvellous invention was hailed with rapturous plaudits.

WIGHTMAN AND VAUGHAN'S ROCK DRILLER.

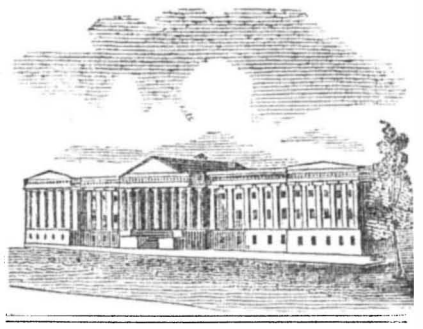


The above engraving is a representation of an apparatus for drilling holes in ledges of rocks for blasting. It is the invention of Pardon T. Wightman and Horace Vaughan, of East Greenwich, Kent county, Rhode Island. The simplicity of this machine is very apparent and its efficiency has been proved by entire practical success, the only true test of an invention's value. It is applicable to drills of all sizes, and for drilling blocks of stone when a perfect round hole is required it is just the machine that is excellent for the purpose. By experience a hole of three-fourths of an inch in diameter has been drilled by it ten feet deep, in twelve hours, a remarkably round hole being always made with very little taper to the bottom. The simplicity and cheapness of this machine must commend it to favor.

Explanation.—A B C D, is a strong upright frame filled with holes, closer above L, M, than below. There is a strong cross piece above to support the drill and block, and can be moved for convenience in the drop of drilling by moving it up or down, on the frame fastening it by pins in the holes. On this is fixed the pully O, over which passes the rope G H J J, is another frame made to be moved up or down on the frame and fixed at any point desired. This frame is covered with a plank door, across. It has a hole in the middle for the drill to pass through and the leaf of the door, it being divided in the middle, can be opened to take out the drill when needed. This frame is made solid so as to guide the drill correctly at every stroke, and it can be shifted up and down to do this with the utmost correctness. *a*, *b*, represents the iron drill, and *b*, the figure on the left represents the lower end of the drill. The drill may be of one or two parts, having a socket and screw The drill is attached to a strap and the rope passing over O, and down over the periphery of the wheel, a fac simile of which is the figure on the right. This wheel is operated by a crank handle, *p*, *e*, and is fixed on a frame R K S, as seen in the middle figure. O, N, is a ladder for gearing and ungearing the jumper or drill with the rope at A. *g*, is a small piece of wood to guide the rope and keep it from swinging.

Operation.—By reference to K. the figure on the right, which represents a wheel (different sizes of which are used,) having a rim about two inches wide made of iron. At the distance of one-third of the rim from the outer edge there is a flange round the whole rim with its upper edge turned over towards the outer edge of the wheel. The use of this flange is to keep the rope from slipping off the rim when wound up. *h*, is a projecting piece of wood fixed on the rim. *a*, is where the rope is attached, and the manner. It will be at once perceived then, that as the rope is wound upon the wheel, when it comes to *h* it is thrown off the rim, and as by the former action ths Drill was lifted up, so by the projection *h* it is made to drop and thus simply and effectually is the mode of this machine's operation. The form of the Drill being square it is kept from catching in any ledges of rocks, which is the cause of much trouble in boring by common drills The revolution of the wheel and the twisting of the rope thereby causes the Drill constantly to turn round by the twisting and untwisting, while the thimble *d*, which is fitted to turn easy under the rim of the wheel, keeps the rope from being twisted too hard.

Measures have been taken to secure a patent for the combination of the Drill with the Wheel, in the manner described. In noticing this invention last week we made a mistake in stating that East Greenwich was in Mass.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending Jan 6, 1848.

To Andrew Crosse, of Broomfield, England, for improvement in purifying liquids by Galvanism. Patented January 6, 1848 in the United States. Date of Foreign Patent March 2, 1847.

To John Thurston, of Bath, Indiana, for improvement in Winnowing Machines. Patented Jan. 6, 1848.

INVENTOR'S CLAIMS.

Building Vessels.

By John H. Bellows of Cincinnati, Ohio. Improvement in the construction of vessels, Patented 4th September 1847. Claim.—What I claim as new and desire to secure by Letters Patent is the application of rods of iron passing through the longitudinal planking, and screwing them together, thereby dispensing with the wooden frame as are required in the present mode of constructing vessels.

Manufacture of Soap.

By John Shugert, of Elizabeth, Penn., Improvement in the manufacture of Soap. Patented September 4th 1847. Claim.—What I claim as my invention and for which I ask Letters Patent is the before described composition producing a Soaponaceous compound for cleaning clothes, and different other articles.

Lime Kilns.

By Jacob H. Bower, of Walnut, Penn. Improvement in constructing of Lime Kilns. Patented 4th September, 1847. Claim.—Having thus fully described my invention, I do not claim the peculiar manner of laying the stones in order to form conducting passages or channels for the diffusion of the heat, as I am well aware such disposition or arrangement has been made in the setting of brick kilns, but what I do claim as my invention, and desire to secure by Letters Patent is combining such arrangements or disposition of the limestone with a temporary casing or kiln in the manner above specified, by means of which I obviate the difficulty and expense incurred in the erection of a permanent kiln.

India Rubber Manufacture.

By James Thomas of New York. Improvement in preparing India Rubber. Patented 4th September 1847. Claim.—What I claim as my invention and desire to secure by Letters Patent is the use of the acids of sulphur of a lower degree of oxygenation than the sulphuric acid in combination with suitable bases, but prefer a hyposulphite which can be used alone, or in combination with the other salts of the acids of sulphur as above mentioned, or with the sulphurets. I claim the use of artificial sulphuret of lead, used either alone with the India Rubber, or mixed with a salt of a lower degree of oxygenation than a sulphate, but prefer using a mixture of about equal parts of a hyposulphite and artificial sulphuret of lead as before stated.

Carding Machines.

By H. G. Ellsworth, of Enfield, Conn. Improvement in Feed-rollers for carding machines, &c. Patented 4th September, 1847. Claim.—But what I do claim as my invention and desire to secure by Letters Patent, is the combination of the fluting with the screw, thread or grooves on the surfaces of feed-rollers, thereby forming teeth which straighten the fibres and more effectually prevents lapping.

A gold mine has just been discovered in the Government of Irkoutsk, in which this metal is found in a state of complete alloy with silver, a mineralogical fact which is extremely rare.

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NEW YORK, JANUARY 15, 1848

Weaving.

The art of Weaving is as old as history itself. It is not possible to tell where it was invented, nor at what period. In Sacred Scripture we have accounts of fine garments of needle work, and at the very commencement of the Jewish empire, the garments of Babylon must have been very fine. When South America was discovered, the inhabitants were in possession of beautiful garments of cotton cloth, shining with the most brilliant colors. In North America, at least among the savage tribes of the United States and Canada, no traces have been found that they possessed a knowledge of the art of weaving. Among all the inhabitants of Asia, the art is known, and for all the experience and advancement in the art of weaving made by the civilized nations of Europe and our own nation, still in regard to quality singly, the semi civilized Asians far surpass us. In England, cotton has has been spun so fine that it would require a thread of 490 miles in length to weigh one pound—but the Hindoo girl, by her hands has made a thread which would require to extend 1000 miles to make a pound ; and the muslins of her manufacture, when spread on the ground and covered with dew are no longer visible. The shawls of Cashmere are unrivalled still and crapes of Canton are not yet surpassed in beauty, and some of the turbans of the Turkish and Persian chiefs are so fine that the threads cannot be seen. All the orientals manufacture by the hand, and in Europe no machinery can produce such fine webs as those which come out of the hand loom.

The finest and most beautiful shawls and scarfs sre manufactured in Paisley, Scotland.—Like the inhabitants of Lyons in France, the Paisley weavers meet often in clubs and discuss the beauty or defectiveness of new patterns. From this custom they have been able to keep in advance of all the British weavers in fine patterns.

The first fine linen thread made in Scotland, was in Paisley, by a young girl named Christiana Shaw, who figured conspicuously in the annals of Scottish witchcraft, about the period that New England was disturbed by this mania. Spitalfields and Leeds in England, are celebrated for weaving, the former for silk, the latter for woollen goods. Lyons in France, weaves the finest silk and satin fabrics in the world ; but all the fine work is done by the hand loom. America as yet, manufactures no very fine goods, especially cotton fabrics. As for linen, we know nothing about its manufacture, although there are thousands of Irish men and women who might, were they encouraged, make surely as good and as fine linen here as they made at home, and which is not surpassed by that of any other nation if equalled. The art of linen weaving was introduced into Ireland and Scotland by the Huguenots, from France, and in Dunfermline, in Scotland, and near Newton Stewart, in Ireland, is yet yet made by the descendants of the same people, the finest and greatest variety of linen fabrics. The United States have made greater advancement in the art of woollen weaving than in that of any other fabric, and from specimens which were exhibited at the late Fair of the American Institute, we hope soon to see our manufactures rivaling in fine goods those manufactured abroad, as we now manufacture coarse goods, that are better than those of any other nation.

Water Ram.

A correspondent writes us that there is a Water Ram at Greystoke Castle and another at Gilsland Wells, England, where the water is raised over two hundred feet high, and any person can soon be furnished with one by him this country, with full directions for fitting up.

Action of Sulphur upon Iron.

But few parties will be found to dispute the fact, that the action of sulpnur upon iron is injurious to the metal. When coal contains much sulphur, or pirites, sin.ple coking will not separate the whole of it A portion of sulphur, certainly. is dissipated by the partial burning of the coal, but enough remains to have an injurious effect upon iron smelted or worked with such coke. In the treatment of ores and fuel, for the separation of sulphur, the use of steam at a high temperature, has been proposed, by heating the steam, as air is heated for hot blast, previously to passing it through the materials. The grate to be set in mason work, so as to form a close ash pit, and an arch turned over the grate from side to side, leaving the two ends open. A fan-blast is required to blow into the ash-pit; but no blast is to be used over the fire, and a requisite supply of water for the grate. At one end the coal is thrown in; and at the other it is withdrawn, when sufficiently ignited, and acted upon by the vapor. Below the withdrawing end, a close deep kiln ts to be built, having an opening at the bottom, with a close iron door to fit. About half way up a horizontal opening or slit—the length of one side of the kiln—is to be left for the purpose of introducing scaffolding bars; this opening to be provided with an air-tight cover. Different portions of coal, after being calcined are to be drawn from the grate into this kiln until it is full. The scaffolding bars are then to be introduced, the door at bottom opened, and the lower half of the coke drawn out. The door at the bottom is then closed again, the scaffolding bars removed, that hole closed, the upper half of the coke dropping down, and the operation of calcining resumed, until the kiln is again filled.

Our Advertising Page.

We request the attention of our readers to our advertising columns. There is the place for informatien regarding machinery. Those who desire to let the world know something about their machines, will recollect that the Scientific American is the best paper in the world to advertise patent machines and machinery of every description. Those who want to buy a good article of machinery, and embrace good offers, for carrying on or engaging in business, have just to consult our advertising page. for the right kind of information.

Cotton from South Africa.

From Port Natal, South Africa, favorable accounts have been received in England, of the soil and climate of that country for the growth of good cotton. It is said that the trees of six years old are as good there as those of three years. In this respect, if it be so, they have an advantage over America, but we doubt if any part of the whole world will will ever be able to compete with America in the price of cotton. The enterprise, the ingenuity and energy of our people will always bear down the scale in their favor, and the excitement lately generated in the South for cotton manufacturing, will soon develope itself, we think, in monopolizing the entire cotton trade of the world.

File Manufactory.

We have been informed that machinery is now in operation at Andover, Mass., for manufacturing files upon a large scale.

The piece of steel to be cut is placed in a socket, and then carried under a sort hammer chisel which moves with a motion similar to that of a toggle joint reversed and which not only cuts the teeth, but at the same time turns up the edges so as to make them rough, like the teeth of the best English files.—The apparatus is very simple, but is said to work well

Slave Steamers.

Three large Steamers; says the N. Y. Evangelist with engines from two hundred to three hundred horse power, have been fitted at Bahia, S. A. for the slave trade, One of them has alrerdy arrived on the West Coast of Africa, where she embarked 900 alaves, and escaped the brig of war Sea Lark, by steaming away from them during a calm.

Ploughs for the South and West are manufactured in large quantities at Pittsburg, Pa.

Steam and Water Power.

The following opinions and statistics relative to the cost of steam and water power by a correspondent of the Louisville, Ky., Journal, should receive the careful attention of our manufacturing population, as it is one of great importance and becoming more and more so every year.

" I find from Dogget's Railroad Register, that the average cost on cotton and dry goods, between Boston and sixteen of the most important manufacturing towns that receive cotten through and send their manufactured goods for sale at that city is $2 70 cents per ton. This is about the average price of such freight by steamboat, between Louisville and points 300 miles distant.

" From the annual sheet of Lowell statistics published in January last, I make the following extracts :—

'An important undertaking, eventually to redound to the interest and wealth of the city is the building of the *new canal*. It is destined to give to most of the mills in the lower level a more regular supply of water, and, consequently, benefit those on the upper level. It is to be of the average width of 100 feet, and a depth of 15 feet. It will require in its construction a *rock* excavation of 150,000 yards, and an earth excavation of 110,000 yards, and a mass of masonry of 50,000 yards; the whole estimated at an expense of not less than $500,000.

'In the course of a few months will be in operation a mill built by the Hamilton company, to commence with 10,368 spindles and 260 looms ; but is of sufficient capacity to contain nearly 20,000 spindles and 400 looms. *The driving power for this will be a steam engine* of 160 horse power, which is being put in.'

" The same sheet gives a steam engine of 190 horse power as that used by the Prescott manufacturing company, which commenced operations in 1846. This company use 1200 tons of anthracite coal per annum. Here then is the second steam mill at Lowell ; the first must have been profitable.

" I remark in reference to this 'new canal,' that, if we add to its cost the further cost of the side canals to take the water to and from the mills, and the excavation for and building of water wheels, we have a capital sufficiently large to build on the Ohio river, and then fill with the most approved machinery, and then furnish with a fair working capital, five or six mills as large as those recently erected by Triplett & Barret, of Bon Harbor ; Strader, Fosdick & Harkness, of Cincinnati, and Kennedy, Childs & Co., of Pittsburg, Penn., all large mills."

Value of Steam in Manufacturing.

The Utica N. Y. Steam Woolen Factory, was incorporated in February, 1846, under the General Manufacturing Law, which has long been in existense in this state. In the spring of 1847 it commenced manufacturing woolen goods, since which period it has been in regular and successful operation. The Board of Directors. on the 16th of December last, after a full and stationary examination of the concerns of the Company, declared a dividend of ten per cent, payable to stockholders on the first day of February next—leaving a surplus profit of upwards of 25 per cent, on the capital stock paid up, subject to their future action.

The whole cost of the real estate, buildings machinery and fixtures of the Company, as nearly as can be ascertained, $88,044,60.—The whole of the machinery is now in full operation. and the cloth now manufactured daily, exceeds 450 yards of finished cloth.

Rewards.

Professor Mitchell, the distinguished astronomer of Cincinnati who has been recently lecturing in this city at the conclusion of his course, stated that his object in lecturing was to provide for himself and family. He has not received any salary from the Institution of Cincinnati, for six years, on account of the inabllity of its officers to afford it

Price of Pork.

At Cincinnati, 7000 hogs have been sold, recently at $2,50 per hundred.—About 25,000 have been packed in that city during this season.

Working Men.

Dr. Channing urges upon. working men to study politics—to look into affairs of state—and to understand every thing connected with public affairs. This is excellent advice ; and it is particularly desirable in a country where working men have to participate in the election of those who are to make the laws by which the country is to be governed. " The time" (says he,) " thrown away by the mass of the people on rumours of the day, might, if better spent, give them a good acquaintance with the constitution, laws, history, and interest of their country, and thus establish them on those great principles by which particular measures are to be determined. In proportion as the people thus inform themselves, they will cease to be the tools of designing politicians." The theory of our government is, that all power is derived from the people ; but practically power is conferred by the leaders of parties, who, in the distribution of offices, always take care to supply themselves first. This is the result of workingmen neglecting to investigate for themselves, and being content to follow the dictation of demagogues.—Every man shauld make himself acquainted with " the constitution, laws, history, and interests of his country," and thus be enabled to exercise his own judgements on public affairs, and to act and to vote independantly. If such were the case, parties would act with more circumspection, and the country would be better governed.

Gun Cotton.

The officers of the Arsenal at Washington have been engaged in experimenting with gun cotton, testing its qualities as a substitute for gunpowder. The following is the substance of the most material part of their report :—

In consequence of the quickness and intensity of action of gun cotton when ignited, it cannot be used with safety in our present fire arms. By experiments, such as an accident of service, as that of inserting two charges into a musket, (which often occurs,) would cause the barrel to burst ; and, from the repeated bursting of pistols and other small arms with small charges, there is no doubt that the barrels of our small arms would be destroyed by a few rounds even with service charges

Novel Performance.

There is exhibiting in Broadway, this city, at the present moment a number of canary birds that have been trained to draw carriages wear cocked hats and coats, fire off small cannons, dance on the tight rope, stand on their heads, and perform various other feats, that display a capacity to learn and be trained which no one could imagine the feathered race possessed. As might be expected the performances are witnessed by hundreds of ladies and children daily.

Well, these are vain trophies of great patience and misspent time, and many will find a shilling to spend, in this manner but not one cent for the poor.

Scientific American---Bound Volumes.

The second volume of the Scientific American, bound in a superb manner, containing 416 pages choice reading matter, a list of all the patents granted at the United States Patent Office during the year, and illustrated with over 300 beautiful descriptive engravings of new and improved machines, for sale at this office—Price $2,75. The volume may also be had in sheets, in suitable form for mailing—at $2.

The back Nos. of the present volume may also be had upon application at the office.

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Air Engine.

At the request of one of our subscribers we publish the following succinct account of an Air Engine, invented by Mr. J. Stirling, C. E. of Dundee, Scotland, and patented Oct. 1st' 1846 :—

Mr. Stirling's engine is constructed on the principle that air has its bulk increased with an increase of temperature, and diminished when the temperature is lowered. Two strong air tight vessels are constructed with a cylinder, one at each end of it, the pistons working in the common way. Four-fifths of the inside of these vessels are occupied with air tight plungers which are attached to the opposite ends of a beam and can be moved up and down the remaining fifth part of the vessel. By the motion of the plungers, which are filled with non-conducting substances, the air to be acted upon is moved from one end of the outside vessel to the other, and as one end is kept at a high temperature and the other as low as possible, when the air is brought to the hot end, it has its pressure increased, and diminished when it is brought to the cold end. It follows, therefore, that as the interior vessels move in opposite directions, the pressure of the enclosed air in one vessel is increasing as that of the other is diminished. A difference of pressure is thus produced on the opposite sides of the piston, and it is thereby made to move from one end of the cylinder to the other and by continually reversing the motion of the plungers, the greater pressure is successively thrown upon a different side and a reciprocating motion of the piston is kept up. The piston is connected with a fly-wheel in the usual way and the plungers by whose motion the air is heated and cooled, are moved in the same manner and nearly at the same relative time as the valves of a steam engine. This is the way in which motion is produced. But there is one thing economical about it. The heat required to raise the temperature of the air is not lost every time the air is cooled. The air when heated to its greatest temperature is not at once brought into contact with the coolest part of vessels, but is made to pass from the hot to the cold end of the air vessel by a multitude of narrow passages, the first being nearly as hot as the air and gradually declining until it becomes nearly as low as the coldest part of the vessel. As every body by contact will give out some of its heat to another that is colder than itself, it follows that the air which enters these narrow passages must give out a portion of its heat to the hottest and more and more as it goes through the passages until it is about to escape into the coldest vessel when there is but a small portion of heat to be extracted to bring it to the coldness required, and thus the greater part of the heat has been left behind in the metal of which the passages are made, which are so contrived and arranged as to retain that heat until it is again required to heat the air, and it is very evident from the manner in which the heat is distributed over the whole length of these passages that it is capable of being again employed for the purpose of expanding the air, for when the cold air is made to enter the passages to be heated, it comes in contact with matter hotter than itself and therefore it begins to acquire heat when it first enters these passages and receives an increase of temperature as it advances, and so when it comes to the last it requires but a small addition of heat to give it the required elasticity to move the piston. By this ingenious and scientific arrangement of Mr. Stirling instead of being obliged to supply at every stroke of the engine as much heat as would be necessary to raise the air from the lowest to the highest degree of temperature, it requires only as much heat to be furnished as will heat the air to the same number of degrees by which the hottest part of the air vessels, exceeds the hottest part of the intermediate passages, and this is the foundation of the economy of producing power from heated air by a small expenditure of fuel and which for three years has been attended with great success, but of this we shall speak more particularly in our next number.

(*To be continued.*)

A lady had her head nearly severed from her body in Baltimore, lately, by the explosion of a steam boiler used in a refectory.

John Fitch.

Who has not heard of John Fitch the obscure and unlettered but ingenious American Mechanic. In 1775 John Fitch conceived the project of a Steam Boat and in 1788 applied for, and obtained a patent for the application of steam to navigation. He had previously made a model of his contrivance, and showed it to General Washington, who then recollected that a Mr. Rumsey of Virginia had mentioned the same subject to him in the winter of 1784. But Fitch alledges that the model then exhibited by Rumsey, was a boat to stem the current of rapid rivers, by means of wheels cranks and poles: a contrivance, which, he says, had been tried many years before either his or Rumsey's had been thought of, on the Schylkill, by a farmer near Reading, and failed. Fitch claims to have made an experiment in 1783, on the Delaware and succeeded in moving about by paddles, which derived their motion from a steam engine. Both Fitch and Rumsey were supported by associations of wealthy persons, who advanced money to make partial experiments and to assist in taking out patents in England. It appears that in 1786. Rumsey having procured a patent in Maryland, made a trial by steam alone, *against the current of the Potomac, at the rate of four or five miles an hour.* His boat was about fifty feet in length, and was propelled by a pump worked by steam, which propelled a quantity of water up through the keel, and forced it out at the stern, through a horizontal trunk in her bottom. The reaction of the effluent water carried her at the above rate, when loaded with three tons in addition to the weight of her engine, about a third of a ton. The boilers held no more than five gallons, and needed only a pint of water at a time; and the whole machinery only required a space of not more than that of four barrels of flour.

It was not till 1786 that Fitch got ready to make his experiment. In that year his boat was launched in the Delaware. A view of his first boat was represented in the second vol. of the Sci. American, page 25. This engine had a twelve inch cylinder. and the piston a stroke of three feet. Each revolution moved twelve oars or paddles five feet and a half, which worked perpendicularly, and represented the strokes of the paddles of a canoe. As six paddles were raised from the water, six more were entered and the two sets of paddles made their strokes at about eleven feet in each evolution. The boat performed her trip to Burlington, a distance of about twenty miles but unfortunately burst her boiler in rounding to the wharf. He procured another boiler, and performed another trip from Trenton to Burlington and back in the same day. She moved at the rate of eight miles an hour, but some part of the machinery was continually breaking, and the unhappy projector only conquered one thing to encounter another. Perhaps this was not owing to any defect in his plans, but to the low state of the arts at that time, and the difficulty of getting such complex machinery made with proper exactness. Both of these Americans, and indeed most of the European experimenters, labored under the disadvantage of imperfect models, to make their experiments with; their machines being the productions of inexperienced workmen, laboring with improper and inefficient instruments. Little else than failure could be anticipated of the best conceived machines under such circumstances.

As early as the year 1747, the legislature of New York passed an act for granting and securing to John Fitch the sole right and advantage of making and employing for 15 years the steam boat by him invented.

In 1798, that act was repealed, and similar priviliges extended to Robert R Livingston, (Chancellor of the State.)

John Fitch was undoubtedly the father of American Steam Navigation, but he had no rich friends to take him by the hand and forward his invention and being poor he faded away as it were in obscurity. He died of a broken heart on the banks of the Ohio, where he now sleeps but although dead, he yet speaketh.

An observatory, to cost $40,000 is proposed to be erected in Brooklyn, N. Y., the result of Prof. Mitchell's lecture in that city.

A Good Word to Young Men.

We take the following from the Philadelphia Ledger, and we must say there is a good deal of truth in it. We heartily recommend it to the attention of all young men; not that they should be proud and despise the advice of experience, but that they should act according to the teachings of sound reason. The opinions of the Ledger are the very opinions expressed more than once about old and young Generals. We should have been glad, however, if mention had been made of the names of some brilliant exceptions in our own country.

"Give us young men to direct the affairs of young countries. Young men are bold, adventurous, ardent and aspiring. Not content with the present they aim at something better. Consequently they must always aim upwards, and generally aim high. Old men are conservative, and consequently timid.—They wish to keep things as they are, because *they* have monopolized the best of everything yet obtained. Old men wish to keep what they have got, young men to get what they can. Among farmers, old men plod on, and laugh at the innovations which young men call improvements. Among mechanics, old tinkers shake their heads at new machinery. Among physicians, old men bleed and blister and butcher according to old books, established authorities when *they* were young. Among preachers, old men stick to creeds and platforms, and swear by Hooker or Hopkins. Old soldiers stick to Frederick and Baron Steuben. Old politicians stick to their old mistakes. In our Revolution the old men were Tories, who wished to keep what they had got, while the Whigs were young men seeking their fortunes. Washington was middle aged, the great lights of the Continental Congress no more; Knox, and Greene and Schuyler and Mercer and Morgan and Shelden and the rest of them were young fellows, and Hamilton hardly of age. In the French Revolution, the old nobles, the old priests, the old fools—ran away. The *movement* was directed by those splendid young men who afterwards became Napoleon's marshals; Napoleon himself being a mere stripling when he crossed the Alps and cleared Italy of Austria's grannies.

In our last war with the British, the War Department was first directed by Dr. Eustis, then by Gen. Armstrong, and our armies led by Gen. Hull, Gen. Wilkinson, Gen. Hampton, Gen. Dearborn, all remains of the Revolution. Every thing went wrong. Defeat, surrender, disgrace, were the order of the day.—If our young soldiers and subordinate officers gained a victory, the granny generals were sure to lose all its fruits. Mr. Madison became disgusted and the country indignant. He called to his cabinet Alexander J. Dallas and other men of greener years, and put our armies under the command of Brown, Scott, Gaines, Ripley, all young fellows. *Then* every thing prospered, and the star-spangled banner was enveloped in a blaze of glory. "Old Hickory" was just or scarcely forty when he gained the battle of New Orleans. On the ocean, all the commanders who did anything were young. While *old* Chauncey was poking about on Lake Ontario, *young* Perry and *young* Elliot and *young* McDonough were gaining victories on Lakes Erie and Champlain. While *old* Rogers made cruise after cruise without finding the enemy, *young* Hull and *young* Decatur and *young* Biddle and *young* Jones and middle aged Stewart and Bainbridge were finding and capturing the enemy every day.—Give us *young* men to act, and nothing over middle aged men to think. Our country is young, and therefore we must "go it while wer're young."

An Elevated Mind.

The soul that is impressed with the grandeur of its powers and feels that it would be indignity to itself, and its Creator, to debase them in any ignoble and degrading association, is pluming its wings for a flight to the bosom of the Godhead

Dr. P. Ellsworth of Hartford, has performed amputation of the thigh upon a patient who felt no pain whilst the operation was going on, having been placed under the influence of nitrous oxide vapor, (laughing gas.) Ether was first tried but without success.

Law's Stave Jointer.

WILMINGTON, N. C. January 6th, 1848.

Messrs. Munn, & Co.

GENTLEMEN.—In your paper of 1st. inst., there is a communication from Judson & Pardee, complaining that my stave jointer is an infringement upon their jointer. From the tenor of that paragraph your readers would be likely to infer that my machine and theirs were one and the same thing, whereas there is a wide difference between them. Their machine joints but one edge of the stave at a time and it must necessarily pass through the machine the second time to finish it, and then the staves are not always brought to equal widths at each end, mine joints both edges of the stave in once passing through and brings both ends to equal widths, and will do the work of two of their machines, and do it more perfectly. The machinery, therefore, *cannot* be alike. My jointer resembles theirs only in the following particulars, viz: both joint with circular saws; this is no new thing both feed the stave to the saw in a curved line, this also is not new, and this is all there is of encroachment. I claim nothing not a whit that is in Judson's machine but what I do claim and what Judson's machine has not got is, first, the double or S form of the curve, second, the index bed in combination with the moveable saw to govern the width of the stave, and thirdly, the mode of shifting the saw with the double levers and weight, or equivalent, what.—They advertise the public, that I "got my ideas" from them I feel myself called upon to reply. that the principal features of my jointer were planned and explained to my machinist long before I knew any thing about their mode of jointing, and farther, I shall be able to prove, that after *very many* unsuccessful efforts, they abandoned the idea of jointing both edges of the stave at a time, as impracticable for general use, my jointer does this with *great ease and facility.*

I would here state that my jointer is attached to my newly invented stave dressing machine, which for dressing staves of all kinds and *all shapes* has not its equal in the world; of this fact the public will soon have an opportunity of judging for themselves, and I am quite sure that after a twelve months trial, if not before, the decision will be in the affirmative.

The staves are taken promiscuously from the heap and placed in the hopper, from whence they pass at the rate of 8 to 10 per minute, and when they reach the floor are finished ready in every respect for the truss hoop and unlike some machines, they spoil no stock however crooked or twisted the stave may be. Yours, &c.

H. LAW.

TO CORRESPONDENTS.

"W. L. of N. J."—Your plan for conveying electric intelligence has been long known and used in small experiments, but if you try it on a large scale, you will find that it will not work. If you can make it operate on a globe that has a greater extent of surface than nine tin foil common vases for electric experiments you can do more than any other experimenter. A patent certainly could be obtained, if the invention will operate for the purpose you have set forth.

"G. W. D of H., N. Y."—You will find out whether Mr. Waldo has got a patent within the last two years, by examining our Lists of Patents, as published in the Scientific American. All are published there.

"N. M. of Mass."—It Is impossible to answer your question without exammation at the Patent Office, which can be done for the usual fee $5, and all post paid to Washington and from it. The patents for stoves are too numerous. There is not a stove inventor who has paid attention to the great improvements wanted in an easy way of cleaning out the ashes, and kindling the fire. There is not a stove that has the least convenience in this respect that we have ever seen but one, and there is no patent on it.

"A. H. of N. C."—The application for a patent should be made as soon as possible so that the fullest protection for infringement may be obtained. We are much obliged to you and will attend to your report.

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"N. H. B. of Me."—We have sent the information by mail.

J. S, of Portland Me."—We can send you Bourne's Book on the Steam Engine, published by the London Artisan Club. It is just the thing you want, very valuable and full of plates. The price is $8,50. It can be sent by express. A few has been received by the Caledonia also the Catechism of the steam Engine price $1,50.

"E. D. C. of Conn."—There is no Gutta Percha yet manufactured for the purpose of making globes, but it will soon be, and will be a fine substance for that purpose. Bands, belts and shoe soles can be furnished by ordering the same at this office. Machinery will soon be in operation to manufacture this substance into every state. We shall notice when all is ready.

"J. E. of Ohio."—Your last proposition in regard to the propeller is not new. The same plan was tried by Henry Bell, but was not successful.

"D. M. K. of Ohio."—There is an iron manufacturer in New Jersey, who is going to try the experiment on a large scale, of making malleable iron from cast iron. Experiment will be the only test and we shall await the result. There are a number of works on the iron manufacture See Ure's and Mushet's and Johnson's, Ure's is $5.

"E. W. of Pa."—The Anastatic system of printing is not practised by any printers here to our knowledge. Works on the Anastatic press have been well executed by Carey & Hart, of Philadelphia.

"W. E, L. of Black Rock"—We have taken measures to get your object accomplished and if successful will be able to give you information of the same next week. We are somewhat doubtful of succeeding at present.

"H. H. of Ill."—We have received your letter and will communicate by mail more particularly than we possibly can in our columns to correspondents.

"R, J. of N. Y."—It is common to build vessels at St. Petersburg, Russia, of such a tonnage that they will not float down to the sea of themselves, but by Camels firmly fastened to each side of the vessel, filled with water, and then pumped out, the large vessel is so buoyed up that she floats easily in a depth of water far below her line of draught. If we are not mistaken this plan was used successfully by one of our naval officers in Buffalo harbor during the last war.

"W. B. of Me."—We cannot furnish you with the first numbers of Volume 2.

"M. E. H. of N. H."—We have not got gold pens to sell without holders to accompany.

Patent Agency.

Applications for Patents made at this office, on the most reasonable terms. Neat drawings, specifications, and engravings of the first character, and cheaper than anywhere else. Notices of new inventions, Agency for the sale of Patent Rights, and all business of that nature, promptly attended to. Those who have patent rights to dispose of will find a good opportunity and field for their sale—such as Horse Power Machines and Waterwheels of every description. The largest circulation in the world for advertisements of inventions, &c

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Will the publishers send us No. 2.

Chamber's Library for Young People.

Berford & Co., No. 2 Astor House, have provided us with the first volume of Chamber's celebrated Library for young people, called "Orlandino," an interesting moral story for children, by Maria Edgeworth, neatly bound and very instructive for the class of readers for which it is designed.

The convent of Puebla in Mexico has two ancient paintings, which cost $30,000 each.

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☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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Fire and Burglar's Alarm.

THIS Invention by Messrs. Tomlinson & Hopkins, is worthy the attention of the public. One of the Alarms may be seen at this office, where application may be made for the purchase of rights, either State, County, Town, or single ; or where orders can be left to have them adjusted to any building in the city. MUNN & CO. j15

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A GOOD INVESTMENT

FOR A PRACTICAL MAN WITH A MODERATE CAPITAL.

I HAVE a large well built three story house 40 feet square, situated on a stream that affords a column of water under a head of seven feet, of about 809 square inches four months in the year, about 400 ten months and 150 square inches all the year, with all the water power, wheels, &c necessary. Located 13 miles North-east of Memphis and 10 miles East of the Mississippi River, in Shelby county, Tennessee, which I wish to sell or rent or enter into a co-partnership with a worthy. energetic. honest man (none other need apply,) who understands the business, and who will furnish all the necessary machinery for starting a Cotton Factory. For such an establishment the location is said to be a very eligible one and of which I have no doubt. Any quantity of cotton in the seed can be had within one or two miles of the mill, and provisions in abundance cheaper than elsewhere in the Union. It is situated on the dividing line between the Cotton and Grain growing regions of the Mississippi Valley. I would start the factory myself but for my total ignorance of the business ; therefore I want a sterling man of good character, who understands the business thoroughly and practically, to get the cotton machinery and either rent the site at $1000 a year, or purchase it at $3000, or enter into a partnership with me which I would prefer HE furnishing all the machinery and I all the balance. I would propose commencing operations early in the spring or summer. The limit of this proposition shall be the 1st of March next.—Health of the country good.

j8 4t* S. S. REMBERT, Memphis, Tenn.

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ENGINEER AND ATTORNEY,

For procuring and defending Patents.

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Superior Camphene and Burning Fluid.
November 29, 1847. d18 6m

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Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

Magnificent Portrait of General Taylor.

☞ We have a few thousand left, which we will dispose of at 25 dollars per thousand, 3 dollars per hundred, or 4 cents singly, or 30 copies for one dollar. They may be forwarded by mail. Address at this office. d25

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THE SUBSCRIBER having been engaged in selling American Hardware on commission for 7 years, solicits consignments from manufacturers, and will refer to those who have employed him the above number of years. SAMUEL C. HILLS,
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For the Scientific American.

Japanning.

(Concluded from our last.)

The finishing part of Japanning lies in laying on and polishing the outer coats of varnish, which is necessary in all painted or simply ground colored japan work. When brightness and clearness are wanted, the white kind of varnish is necessary, for seed lac varnish, which is the hardest and most tenacious, imparts a yellow tinge. A mixed varnish we believe, is the best for this purpose, that is, for combining hardness and purity. Take then thre ounces of seed lac picked very carefully from all sticks and dirt and washing it well with cold water, stirring it up and pouring it off, and continuing the process until the water runs off perfectly pure. Dry it then and reduce it to powder and put it with a pint of pure alcohol into a bottle, of which it must occupy only two-thirds of its space. This mixture must be shaken well together and the bottle kept at a gentle heat (being corked,) until the lac be dissolved. When this is the case, the clear must be poured off, and the remainder strained through a cloth and all the clear, strained and poured, must be kept in a well stopped bottle. The manner of using this seed lac varnish, is the same as that of using the other, and a fine polishing varnish is made by mixing this with the pure white varnish described in a previous article. The pieces of work to be varnished for finishing should be placed near a stove, or in a warm, dry room, and one coat should be perfectly dry before the other is applied. The varnish is applied by proper brushes, beginning at the middle passing the stroke to one end and with the other stroke from the middle to the other end. Great skill is displayed in laying on these coats of varnish. If possible the skill of hand should never cross, or twice pass over in giving one coat. When one coat is dry another must be laid over it, and so on successively for a number of coats, so that the coating should be sufficiently thick to stand fully all the polishing, so as not to bare the surface of the colored work. When a sufficient number of coats are thus laid on, the work is fit to be polished, which in common cases is commenced with a rag dipped in finely powdered rotten stone, and towards the end of the rubbing a little oil should be used along with the powder, and when the work appears fine and glossy, a little oil should be used alone to cleanoff the powder and give the work a still brighter hue. In very fine work, French whiting should be used, which should be washed in water to remove any sand that might be in it. Pumice stone ground to a very fine powder is used for the first part of polishing and the finishing done with whiting. It is always best to dry the varnish of all japan work by heat. For wood work, heat must be sparingly used, but for metals, the varnish should be dried in an oven, also for papier mache and leather. The metal will stand the greatest heat and care must be taken not to darken by too high a temperature.

When gold size is used in gilding for japan work, where it is desired not to have the gold shine, or appear burnished, the gold size should be used with a little of the spirits of turpentine and a little oil, but when a considerable degree of lustre is wanted without burnishing, and the preparation necessary for it, a little of the size along with oil alone, should be used.

I now conclude these articles on Japanning and Varnishing. A great deal more might be said, but this may be sufficient for the present. There are other mixtures that can be used, and there are some variety of opinions among practical men. What I have said may be old to some, but presume that much may be new to many and be of some benefit to not a few. At some other period I may again present some more information on the same or other branches in connection with this subject and shall endeavor to be as condensed, plain and practical, as I trust I have been. My honest endeavor at least, being a desire to bring out in public print, something relative to an important art which winds itself round a great number of different trades, and for which I have ever sought in vain for information in any work published in my own lifetime.

M. K.

Floating Beds.

Some curious and interesting experiments have recently been tried in London, on the Serpentine River, to test the powers and buoyancy of of a novel hammock bed, of simple construction, intended for the preservation of lives at sea in cases of shipwreck. Captain Stevens and his son, and several gentlemen connected with naval matters, threw themseves into the water, into which the hammock mattresses were thrown. They got hold of them and found no difficulty in placing themselves upon them, and floating comparatively high and dry for a considerable time. The experiments took place early in the morning, and witnessed by many scientific persons.

Apple Tree Posts.

Friend Buckminster of the Massachusetts Ploughman, suggests that apple trees be set out on a line, where you wish to have a permanent fence, about ten feet apart.—In the course of ten years they would be large enough to mortise in to put cedar or chesnut rails. These, he thinks would last more than half a century. In the mean time the fence posts would occasionally bear apples, and thus they would become profitable in "divers ways."

Water Velocipede.

The Velocipede or Warer Walker is an apparatus used as here represented, *a*, *b*, *c*, are three hollow tin cases of the form of an oblong hemispheroid, connected together by three iron bars, at the meeting of which is a seat for the exhibitor. These cases, filled with air, are of such a magnitude that they can easily support his weight, and as *a*, *b*, and *a*, *c* are about ten feet, and *b*, *c*. about eight feet, he floats very steadily upon the water. The exhibitors' feet rest on stirrups, and he attaches to his shoes, by leather belts, two paddles, *d*, *e*. which turn on a joint when he brings his foot forward to take the stroke, and keep a vertical position when he draws it back against the resisting water. By the alternate action of his feet, he is enabled to advance at the rate of five miles an hour. We have witnessed the above novel experiment.

Concrete for Cellar Floors.

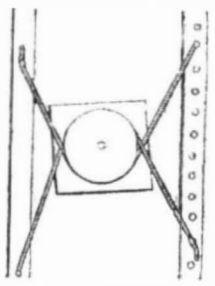
The mortar is to be made of one part sand, to one half part hydraulic cement, measured in rather stiff paste. Then one part mortar, thoroughly mixed, is to be united with two and a half parts broken stone, or brick—the largest pieces not exceeding 4 oz. in weight, or of gravel of similar sizes, or of oyster shells or of either of these mixed together. These corse materials must be very free from sand or dirt.

The concrete thus made, must be put down in a layer of not more than six inches thick, which will be about the proper thickness for the floor; rammed very hard, and until out of sight; care being taken to bring the top of the mass into the proper place of the floor by the first process; no subsequent addition of plaster being admissable By the help of a straight edge, drawn over guide-pieces, the surface may be made smooth and even by the first operation

Fires in chimneys in France have been prevented by placing three frames of wire-work one foot above each other, near the base of the chimney; no flame will pass them.

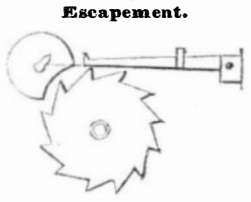
MECHANICAL MOVEMENTS.

Friction Polisher.



This arrangement has been used for polishing mirrors, where it is essential that the friction should not be repeated in the same line. The ropes which go round the central pulley are fast to the perpendicular shafts, and the square mirror is fixed to a pulley. Thus by the back and forward motion of one of the shafts, the mirror is caused to describe irregular curves on every part of its surface

Escapement.



The small centre on the left being the point of vibration of the balance, and the horizontal spring that which holds the ratchet wheel, when the small point on the balance centre is vibrating downwards, it passes a small spring which is held at its opposite extremity near the screw head on the right hand, at the same time the indented part of the circle round the balance centre holds a tooth of the ratchet; but on the return of the balance the same point again comes in contact with the small spring, which resting against a stop at the extremity of the spring, which presses on the two top teeth of the ratchet, relieves and then allows a tooth to escape at the same time that the indented part of the balance is on the return to receive it. This is called the free escapement.

For the Scientific American.

To Dye Wool with Animal Substances.

LAC RED.

Mix oxygenised muriate of tin with lac dye till thick as treacle, and set it aside for six hours. Have a well tinned copper boiler nearly filled with scalding water, into which throw some bran, and a sufficient quantity of newly made nitro-muriate of tin, (tin dissolved in one part nitric and sixteen parts muriatic acid,) add cream of tartar in nearly equal weight to the solution of tin employed, pour in the lac dye, and set aside and work in your wool.

SCARLET.

To a dye prepared as directed for lac red, add either sumac, American bark, or young fustic, in quantity according to the shade required, cool down with cold water, turn in the wool and boil it for an hour, then rinse it and the color will be permanent.

CRIMSON.

Use only half the quantity of tartar specified for lac red, and omit the yellow coloring matter; after rinsing the wool, pass it through a fresh scalding liquor, with archil or cudbear.

PURPLE.

Follow the directions given for crimson, substituting logwood for archil or cudbear.

COCHINEAL RED.

Put two pints of the best Dutch aquafortis into two pints of water, and from one to two ounces of sal-ammoniac in powder; add granulated tin, a small bit at a time, till sufficient is dissolved, and cream of tartar as for lac dye, with well-powdered cochineal in quantity according to the deepness of the shade required. Cool down the preparation with cold water, put in your wool, and boil it for two hours, then rinse in cold water. It is far better, however, to use this quantity in two boils leaving out the cream of tartar in the second, and adding instead starch, and sometimes common salt also.

COCHINEAL CRIMSON.

After rinsing the wool out of the red dye, pass it through a fresh scalding liquor of archil or cudbear as for lac crimson, or through a warm solution of liquid manure from the cow yard.

COCHINEAL PURPLE.

Proceed as for crimson, substituting Saxon blue (sulphate of indigo) for the archil or cudbear.

COCHINEAL SCARLET.

Same as for red, using young fustic, turmeric, or American bark, (Quercitron) in the first bath, and omitting it in the second. It is indispensable that for cochineal scarlet the wool should have two boilings

The colors obtained from cochineal, though superior in brilliancy, have not the permanent qualities of the lac dye or the madder red.

New Blue.

A continental paper says that one Rydni, proprietor of a great dyeing establishment near Gottenberg, a famous place for dyers, has invented a mode of dying cottons without indigo; the blue colors obtained by the substance employed is said to be as clear and fast as that obtained by indigo, resisting the strongest lye, potash and sulphuric acid, and costs but one-sixth the price.

These are the tests for permanent colors. The process is kept secret, and if it be true in relation to the price the discovery is a valuable one, if not, no depreciation in the value of indigo may be expected.

Ball Proof Garment.

The Dublin papers contain an advertisement announcing that a tradesman has succeeded in inventing a "shot and ball proof garment," which the inventor terms a "landlord's protective garment," and which will protect its bearer from being shot.

Indian Miners.

From recent discoveries on the shores of Lake Superior, it is supposed that some of the veins of copper were worked by the Indians in the days of yore. Wedges and hammers made of stone have been found in some of the pits.

An Editor down east says that the constant murmur of the sea reminds him of his wife.

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